

The opinion in support of the decision being entered today
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOSEPH YUDOVSKY, LAWRENCE C. LEI,
SALVADOR UMOTOY, TOM MADAR, GIRISH DIXIT,
and GWO-CHUAN TZU

Appeal 2007-2185
Application 10/614,992
Technology Center 1700

Decided: August 21, 2007

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and
CHARLES F. WARREN, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the final rejection of
claims 3-6, 8-14, and 17-25. We have jurisdiction over the appeal pursuant
to 35 U.S.C. § 6(b).

We AFFIRM.

INTRODUCTION

Appellants' disclosed invention relates to (1) an improved susceptor which inhibits the deposition of process gases on the edge and backside of a substrate, and which may be easily removed and cleaned and (2) a method therefore (Specification ¶ [0002], claims 3 and 17). Appellants' structure for preventing the deposition includes a purge ring 15, with alignment slots 6 on the substrate support 13, and a shadow ring 4 with pins 19 for cooperating with the alignment slots 6 (Figures 7 and 10; claim 3).

3. An apparatus comprising:

a) a substrate support;

b) a first edge ring disposed on the substrate support, the first edge ring having one or more tapered recesses; and

c) a second edge ring having one or more matching tapered pins for mating engagement with the one or more tapered recesses of the first edge ring, wherein the first edge ring comprises a purge ring.

The Examiner relies on the following prior art references as evidence of unpatentability:

Cheng
Koai

EP 553,691 A1
US 6,159,299

Aug. 4, 1993
Dec. 12, 2000

The rejections as presented by the Examiner are as follows:

1. Claims 3-6, 8-14, and 17-25 are rejected under 35 U.S.C. § 102(b) as being unpatentable over Cheng.
2. Claims 3-6, 8-14, and 17-25 are rejected under 35 U.S.C. § 102(b) as being unpatentable over Koai.

Appellants have not separately argued the claims. We choose claim 3 as the representative claim on which to render our decision. The remaining claims 4-6, 8-14, and 17-25 stand or fall with our decision regarding claim 3.

OPINION

35 U.S.C. § 102(b) OVER CHENG

Appellants argue that Cheng's support means 70 cannot be construed as corresponding to an edge ring (Br. 13). Specifically, Appellants argue that because support means 70 is not located near the edge of the substrate and does not provide any structural interaction or function with the edge of the substrate, it cannot be called an edge ring (Br. 13). Appellants further argue that support means 70 provides support for the shield ring 50 and does not prevent edge deposition near the edge of a substrate (Br. 13).

We have considered all of Appellants' arguments and are unpersuaded for the reasons given below.

Cheng discloses that the shield ring 50 rests on the support means 70 when the shield ring 50 is not engaged with the susceptor 40 (Cheng, col. 3, ll. 32-37; Figure 2). When the shield ring 50 is engaged with the susceptor 40, the shield ring 50 lifts off the support means 70 and is elevated (Cheng, col. 4, ll. 23-27; Figure 5). Cheng further discloses that when the shield ring 50 is lifted off the support means 70, a passage forms between the edges 58 and 78 of the shield ring and support means, respectively (Cheng, col. 8, ll. 30-35). The passage between edges 58 and 78 forms a curtain of inert gas so as to confine the process gas to the area above the wafer and prevent undesirable deposition of the process gas (i.e., deposition along the edge and backside of the wafer) (Cheng, col. 1, ll. 3-8; col. 8, ll. 32-46).

Appellants disclose that a shadow or purge ring (i.e., edge ring) is used to control deposition on the edge of the substrate during processing (Specification ¶¶ [0006], [0007]). Appellants further disclose that the goal of their disclosed invention is to prevent deposition of the process gases on the backside and edge of a substrate (Specification ¶ [0002]).

Therefore, like Appellants' disclosed invention, Cheng's support means 70 cooperates with the shield ring 50 to provide a curtain of purge gas and prevent undesirable deposition on the wafer, especially the backside of the wafer (Cheng, col. 8, ll. 40-46; col. 1, ll. 3-8). Accordingly, we find that, since Cheng's support means 70 functions as an edge ring (i.e., prevents undesirable deposition of the process gas), the support means 70 may be considered an edge ring.

We are unpersuaded by Appellants' argument that support means 70 cannot be called an edge ring because it is not located near the edge of the substrate and does not provide any structural interaction or function with the edge of the substrate (Br. 13). Notably, Appellants' claims do not require that the edge ring be located near the edge of a substrate or provide structural interaction with the edge of the substrate. In other words, Appellants argue features that are not in the claims. We will not read such limitations into the claims. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (stating it is incorrect for the Board to read unwritten limitations into claims).

Because Cheng discloses Appellants' argued distinction, we affirm the Examiner's § 102(b) rejection of claims 3-6, 8-14, and 17-25 over Cheng.

35 U.S.C. § 102(b) REJECTION OVER KOAI

Appellants argue that, since Koai discloses that the three rings 220, 230, and 240 of the ring assembly 200 are bolted to the purge ring 280, there is no mating engagement of the first edge ring and the second edge ring (Br. 14-15). Appellants further argue that Koai does not teach matching tapered pins and tapered recesses (Br. 15).

We have considered all of Appellants' arguments and find them unpersuasive for the reasons below.

Koai discloses that the purge ring 280 (i.e., second edge ring) having an outer portion 284 into which pins 272 are screwed (Koai, col. 6, ll. 17-46). Koai further discloses that the edge ring assembly 200 rests upon the pins 272 and is attached to the purge ring 280 (i.e., second edge ring) using bolts 271 (Koai, col. 6, ll. 17-23).

We understand Appellants to be arguing that Koai fails to disclose that the purge ring 280 (i.e., second edge ring) and edge ring assembly 200 mate when in the processing position (i.e., Appellants' Figure 10) and disengage when in the non-processing position (i.e., Appellants' Figure 7). However, this argument is directed to features that are not claimed. For example, claim 3 only states that the second edge ring has one or more matching tapered pins "for mating engagement" with one or more tapered recesses of the first edge ring (claim 3). Plainly, claim 3 does not require that the first and second edge ring mate during processing and disengage during non-processing as argued. We shall not read such limitations into the claims. *Zletz*, 893 F.2d at 321, 13 USPQ2d at 1322.

Rather, as the Examiner indicates (Answer 11) and as we note above, Koai's discloses that the edge ring assembly 200 is mated to the purge ring

280 (i.e., second edge ring) via the pins 272. We agree with the Examiner that, from the preceding disclosure, Koai provides “mating engagement” of the purge ring 280 (i.e., second edge ring) and the edge ring assembly 200 (i.e., first edge ring).

Moreover, Koai discloses in Figure 2(c) that pins 272, bolts 271, and the recesses that receive pins 272 and bolts 271 are tapered (Koai, Figure 2(c), reference numerals 271 and 272). Therefore, one of ordinary skill in the art would have considered that the pins 272 and the pin receiving recesses are tapered. Accordingly, Appellants’ argument regarding the tapered pins and matching tapered recesses is not persuasive.

We affirm the Examiner’s § 102(b) rejection of claims 3-6, 8-14, and 17-25 over Koai.

DECISION

The Examiner’s rejection of claims 3-6, 8-14, and 17-25 under 35 U.S.C. § 102(b) as being unpatentable over Cheng is AFFIRMED.

The Examiner’s rejection of claims 3-6, 8-14, and 17-25 under 35 U.S.C. § 102(b) as being unpatentable over Koai is AFFIRMED.

The Examiner’s decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

clj

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